

Welcome to the Durable Learning Seminar Series

*Thank you for
completing the poll!*

Tell us in the chat:

- What's the time in your location now?
- If you are an educator, what was the last class you taught?





Peter Horneffer,
M.D.

Executive Dean, All American Institute
of Medical Sciences, Jamaica

Director of Medical Education, Lectorio

Cardiothoracic surgeon, Maryland, U.S.

Meet our Learning Science Team



Peter Horneffer, M.D.



Adonis Wazir, M.D.



Satria Nur Sya'ban, M.D.



Meredith Ratliff, M.S., M.A.T.



Sarah Haidar, M.Ed., T.D.



Sara Keeth, Ph.D, PMP

Seminar Topics and Applications of Learning Science

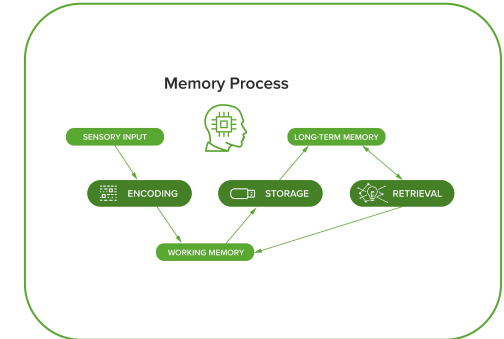
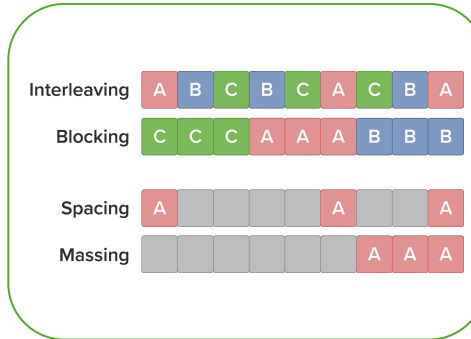
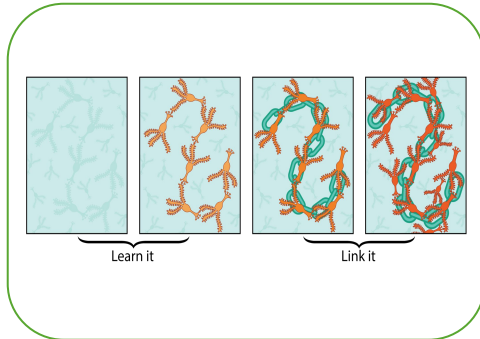
Cognitive Science & Neuroscience



Well-written learning objectives & assessments



Durable Learning



Lecturio

Learning Objectives and Assessments: Evidence-Based Recommendations for Optimal Efficacy

September 14, 2022
Online Seminar

Learning Objectives:

1

Describe the purpose of learning objectives

2

Describe how to create well-written learning objectives

3

Examine the relationship between objectives and learning domains

4

Describe the concept of alignment

We can't see learning happen, so how do we as educators know it has occurred?

Tell us in the chat!

QUESTION



How do you as educators use learning objectives in your classroom?

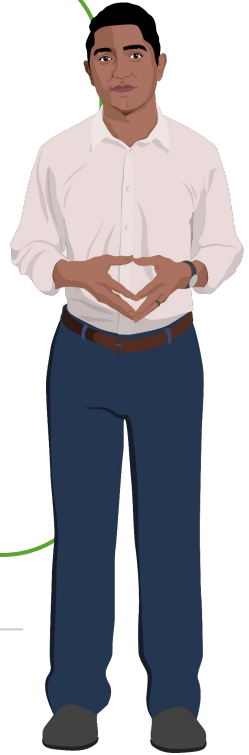
Tell us in the chat!

QUESTION



Learning objectives help **educators** (1,2):

- **Organize** content to clarify the goals of instruction
- **Create** assessments
- **Select** materials
- **Communicate** to students what they need to know and do



1. Khan T, Hande S, Bedi S, Singh T, Kumar V. Learning Objectives: "Perfect is the Enemy of Good!" Int J User-Driven Healthc [Internet]. 2012 Jul 1 [cited 2022 Jul 29];2(3):44–62. Available from: <https://services.igi-global.com/resolvedoi/resolve.aspx?doi=10.4018/ijudh.2012070105>
2. Dick W, Carey L, Carey, James O. The Systematic Design of Instruction. 8th ed. Boston: Pearson; 2015.

How do you think students
use learning objectives in their
studies?

Tell us in the chat!

QUESTION



Learning objectives help **students**:

- **Clarify expectations**
- Help **organize** and **prioritize** study materials
- **Prime** them for learning by focusing their attention
- **Review** key concepts prior to an exam
- **Augment** assigned reading comprehension



1. Khan T, Hande S, Bedi S, Singh T, Kumar V. Learning Objectives: “Perfect is the Enemy of Good!” Int J User-Driven Healthc [Internet]. 2012 Jul 1 [cited 2022 Jul 29];2(3):44–62. Available from: <https://services.igi-global.com/resolvedoi/resolve.aspx?doi=10.4018/ijudh.2012070105>
2. Dick W, Carey L, Carey, James O. The Systematic Design of Instruction. 8th ed. Boston: Pearson; 2015.



Describe how to create well-written learning objectives



ABCD Model

The ABCD model allows the development of well-defined learning objectives



Audience:

Who are the learners?

Students



Behavior:

What will they do?

will describe



Condition:

What are the resources, tools, or environment?

how DNA probes can be used to detect specific nucleic acid sequences in clinical specimens



Degree:

What determines success?

at a level of detail sufficient for another student to complete the procedure.

SMART Model

- **S-** Specific
- **M-** Measurable
- **A-** Attainable
- **R-** Relevant
- **T-** Time-bound



Poll

1

After the lesson, students will learn about the different kinds of antibiotics.

Is this a well-written learning objective?

- a. Yes
- b. No

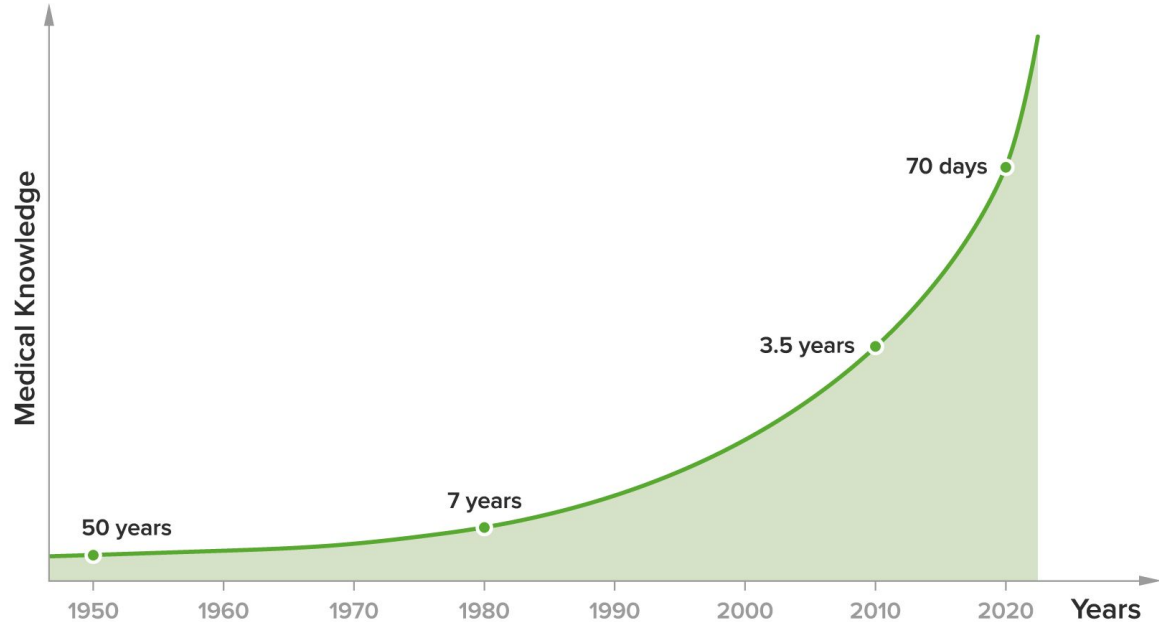
Result

1

After the lesson, students will be able to list the different kinds of antibiotics in the treatment of a Streptococcal Upper Respiratory Tract Infection.

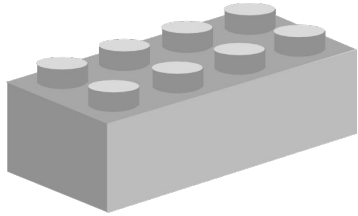
The Challenge

- Medical knowledge doubles approximately every 70 days.

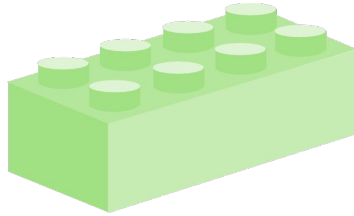


Terminal and Enabling Objectives

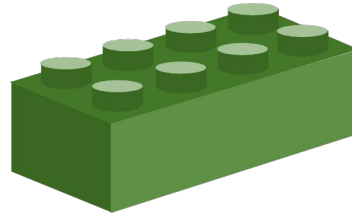
The sum of your enabling objectives
EQUAL your terminal objective.



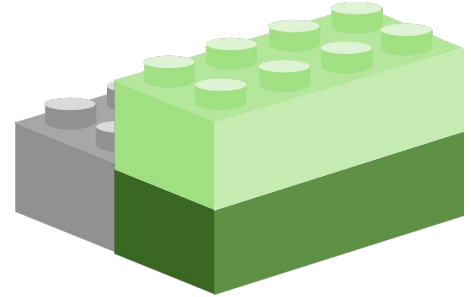
+



+



=



Extended Objective
(nice to know)

Enabling Objective

Enabling Objective

Terminal Objective

Terminal vs. Enabling Objectives Example



Students will...

- 1.0 Diagnose asthma
 - 1.1 Identify normal and abnormal respiratory symptoms
 - 1.2 Identify symptoms of asthma
 - 1.3 Differentiate asthma from reactive airway disease
- 2.0 Determine a treatment plan for a severe asthma case
 - 2.1 Compare medications that treat asthma
 - 2.2 Determine medication use based on severity of symptoms
 - 2.3 Discuss complications from asthma

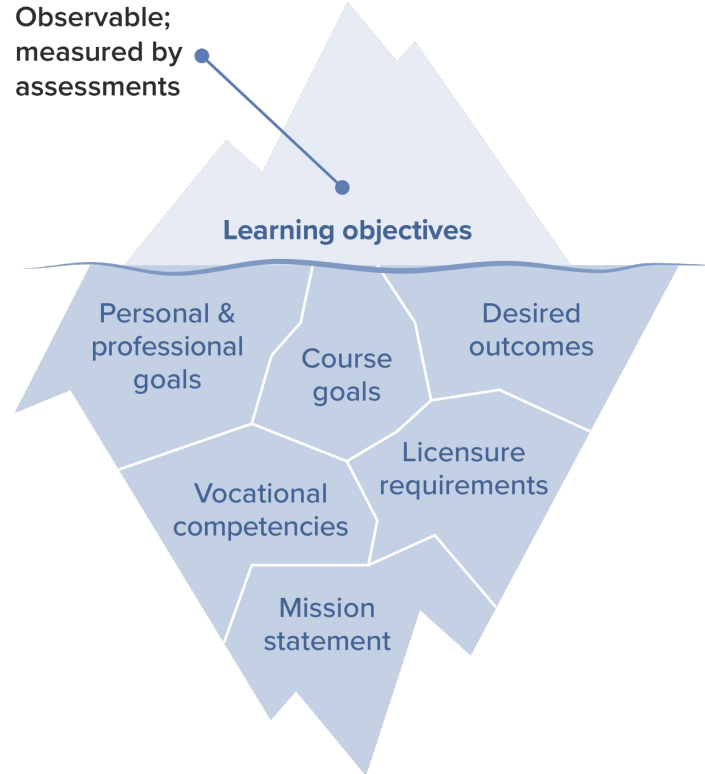


Students will...

- Compare medications that treat asthma
- Identify symptoms of asthma
- Differentiate asthma from reactive airway disease
- Identify normal and abnormal respiratory symptoms
- Discuss complications from asthma
- Determine a treatment plan for a severe asthma case
- Determine medication use based on severity of symptoms

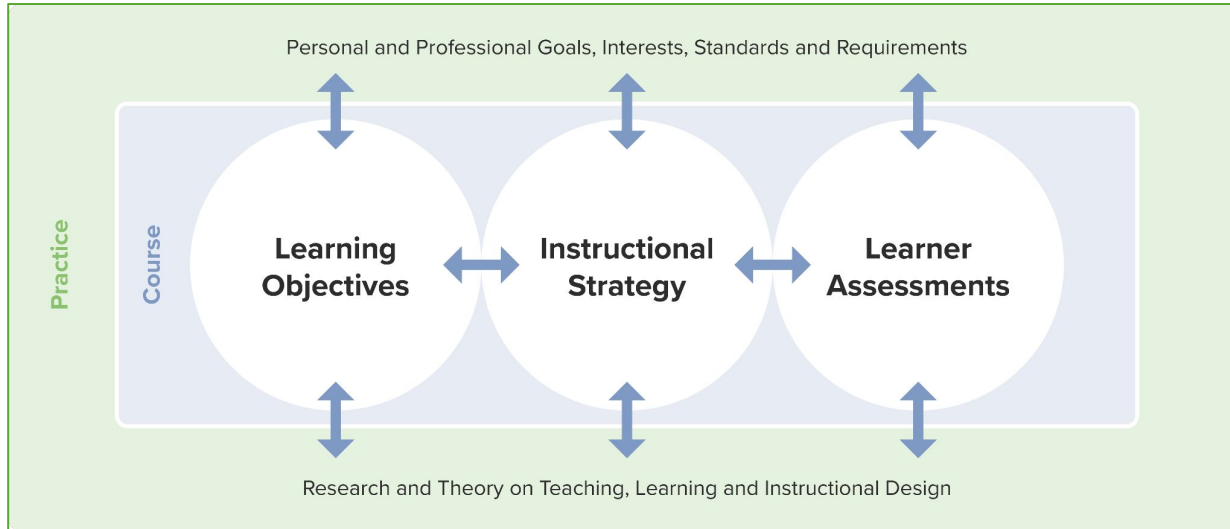
Origin of Learning Objectives

Observable;
measured by
assessments



Instructional Alignment

Objectives should be aligned **horizontally** and **vertically** (1).



Poll

2

Vertical alignment helps increase student engagement.

- a. True
- b. False

Result

2

Vertical alignment helps increase student engagement.

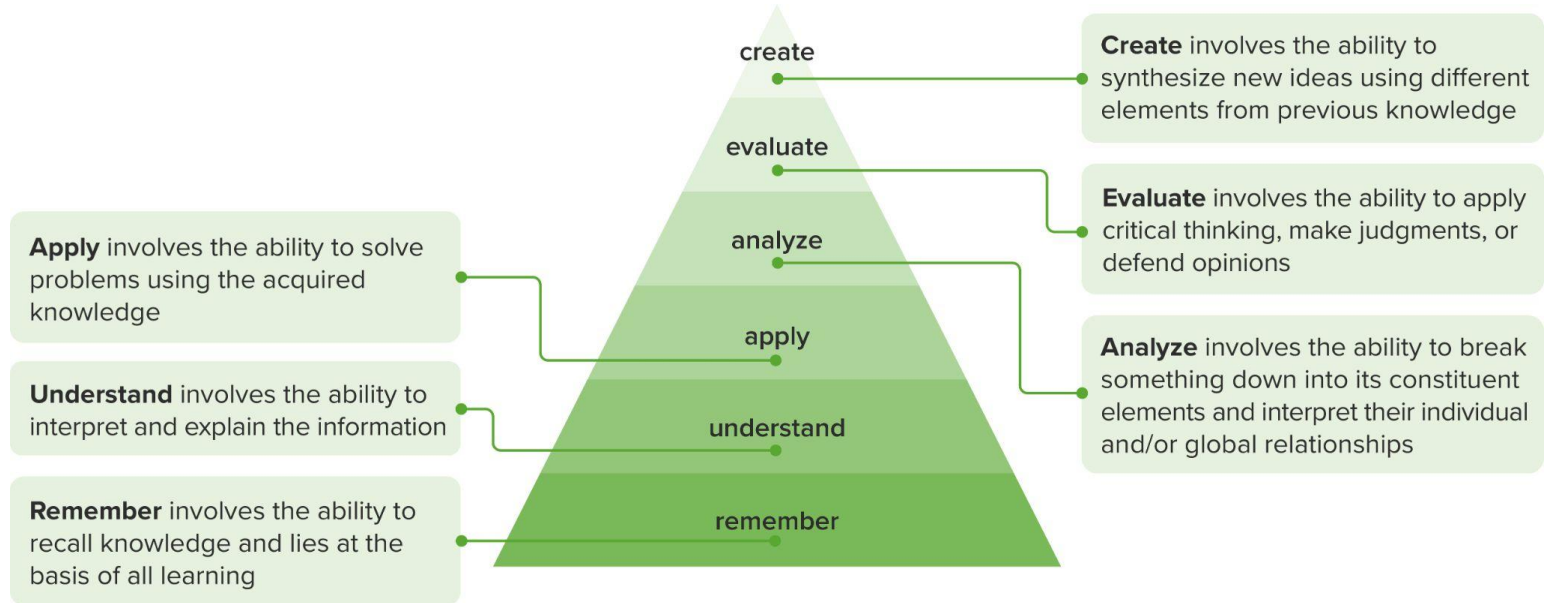
TRUE



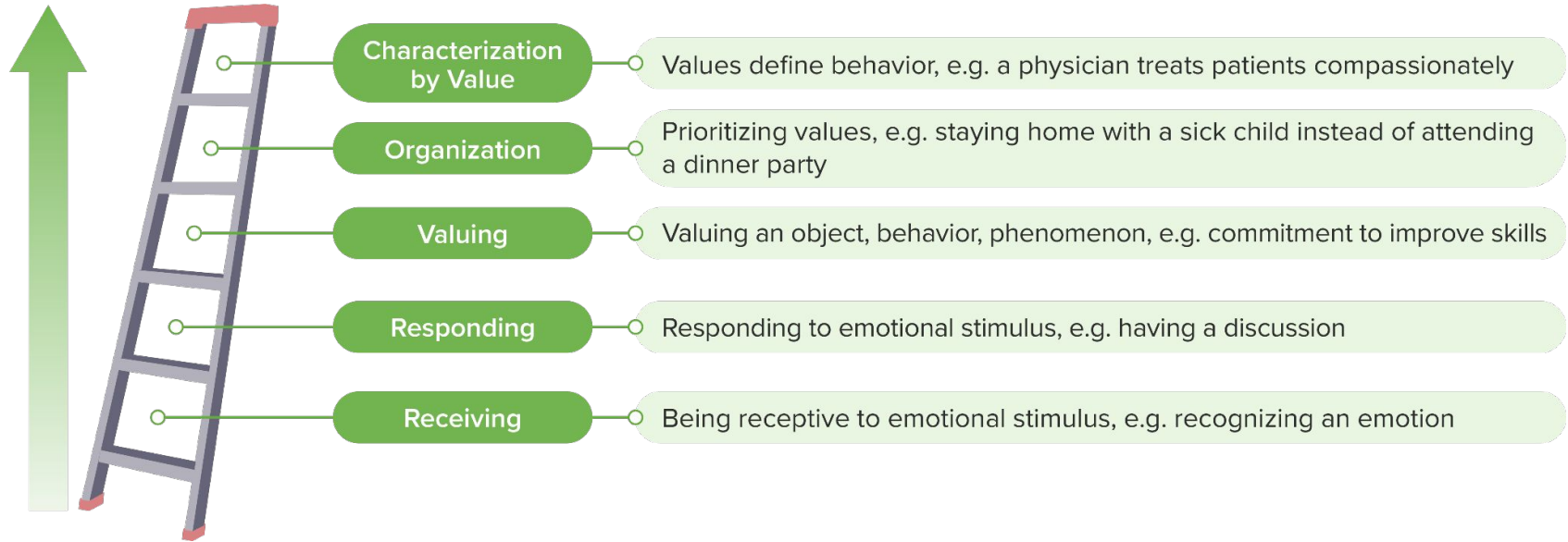
Cognitive, Affective, and Psychomotor Domains



The Cognitive Domain



The Affective Domain



Affective domain, modified from Hoque (1)

Entrustable Professional Activities (EPAs)- Affective Domain

Characterization by Value

Consistently considers patient privacy and confidentiality. **(EPA 8)**

Organization

Responds to early clinical deterioration and seeks timely help. **(EPA 10)**

Valuing

Identifies limitations and gaps in personal knowledge. **(EPA 7)**

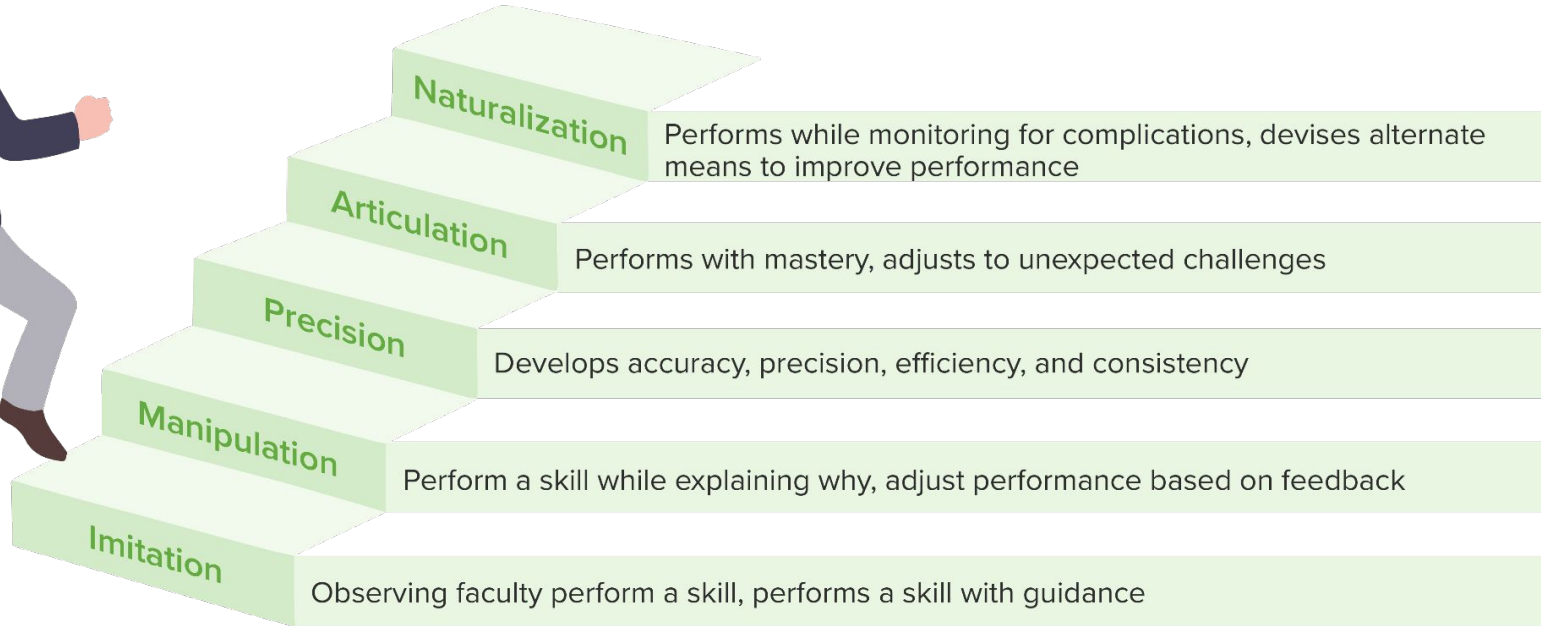
Responding

Responds effectively to a patient's verbal and nonverbal cues and emotions. **(EPA 1)**

Receiving

Recognizes patterns, takes into account the patient's condition when ordering diagnostics and/or therapeutics. **(EPA 4)**

The Psychomotor Domain



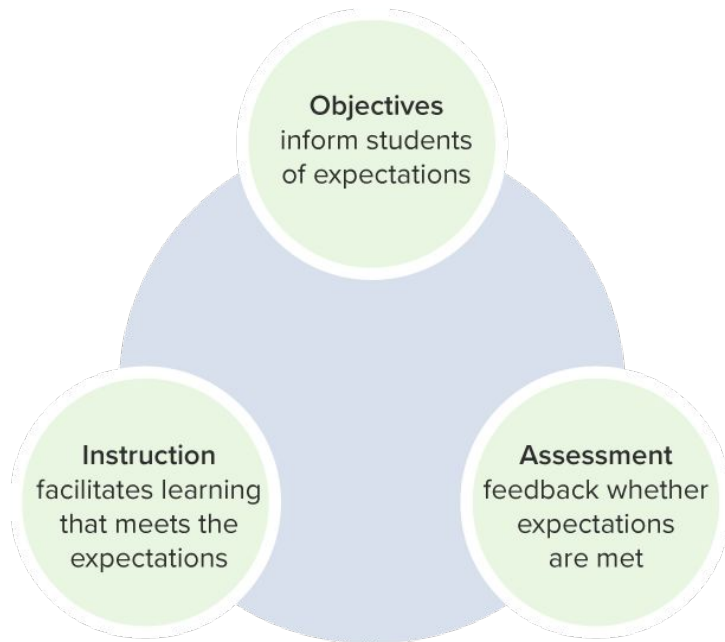


Alignment of Learning Objectives & Assessments



“The Golden Triangle”(1,2)

- Learning Objectives
- Instructional Strategies
- Assessments

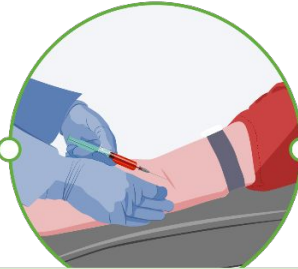


1. Chatterjee D, Corral J. How to Write Well-Defined Learning Objectives. J Educ Perioper Med JEPM [Internet]. 2017 Oct 1 [cited 2022 Jul 27];19(4):E610. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5944406/>
2. Hirumi A. IAMSE 2021—Plenary Session: Top 10 Ways an Instructional Designer Can Help You Define the New Normal. Med Sci Educ [Internet]. 2021 Sep 17 [cited 2022 Apr 15];31(Suppl 1):9–16. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8448173/>

How Alignment Works

Objective

After the lesson,
students should be able to:



Safely perform an
ABG sample draw

Assessment

After the instruction is complete,
students are assessed through:



Direct observation of
procedural skills exam (DOPS)

Well aligned



How Alignment Works

Objective

After the lesson,
students should be able to:



Identify the right steps
for an ABG sample draw

Assessment

After the instruction is complete,
students are assessed through:



Direct observation of
procedural skills exam (DOPS)

Poorly aligned



Poll

3

Which parts/qualities of the objective should align with the assessment?

- a. The verb
- b. The domain
- c. The condition
- d. All of the above

Result

3

Which parts/qualities of the objective should align with the assessment?

- a. The verb
- b. The domain
- c. The condition
- d. All of the above



Types of Assessments & Learning Domains



What type(s) of assessment(s)
do you most often use to
assess your students?

Tell us in the chat!

QUESTION



Essay

Portfolio

Other

Extended Matching Questions

Multiple Choice Questions

Assessments and Objectives

Terminal Objectives

(broad performance goals)

Summative assessment -
comprehensive evaluations



Enabling Objectives

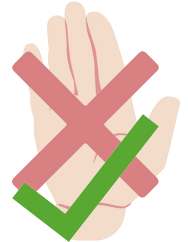
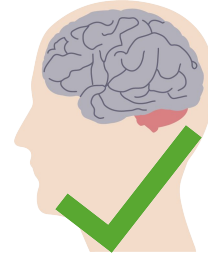
(skills that make up broader goals)

Formative assessment -
low stakes evaluations



Assessments for Each Domain

- **Written assessments** (MCQ, essay, short answer, long answer)
- **Performance assessments** (observation, simulation, practice)
- **Portfolio assessments** (may include multiple assessments or types of assessments)



Practical Implementation Activity

Learning objective: Students will be able to **describe** ethical issues as they arise in clinical practice and to balance competing principles effectively.

Learning Domain(s) (cognitive, affective, or psychomotor)	Assessment Method(s)
Click to reveal	Click to reveal

Respond with the **learning domain(s)** and the **assessment method(s) you would use** in the chat.



Practical Implementations in the Classroom



Practical Implementation for **Instructors**

Create well-defined objectives using **measurable verbs** to define observable behaviors.

Ensure there are a **reasonable number** of objectives: not too many, not too few.

Confirm that objectives **align** with course goals, professional competencies, national standards, and research on teaching and learning.

Find some more recommendations in our article.



Practical Implementation for **Students**

Don't overlook the **course syllabus**: use objectives to guide your studies

Pay attention to the types of **verbs** used

Ask what type of **assessment(s)** will be used if it isn't stated

Find some more recommendations in our article.



How else have you used
learning objectives in your
classrooms?

Tell us in the chat!

QUESTION





Q&A Session

Leave your questions in the chat!





SUMMARY


- Learning objectives can **facilitate students' learning**
- Students are best **guided** by well-defined learning objectives
- Educators should ensure **instructional alignment** as they plan for their courses
- Assessments & feedback instruments should align with learning objectives to ensure **validity and reliability.**

Post-event Handout

WORKSHEET FOR HEALTHCARE EDUCATORS

Learning Science

Learning Objectives & Assessments



lecturio
www.lecturio.com

This template has been designed to help healthcare educators and educational specialists **develop** well-defined learning objectives that serve as a foundation for ensuring instructional alignment.

Objectives help educators organize content to clarify the goals of instruction, create assessments, select materials, and communicate with students what they need to know and do.

The Domains of Learning:

The Cognitive Domain

Bloom's revised taxonomy for the cognitive domain gives six categories or levels, ranging from foundational cognitive processes such as knowledge (e.g. identify or define) to more complex processes such as creating (e.g. design or construct). This hierarchy is helpful for scaffolding instruction and assessment as learners build skills and knowledge.

The Affective Domain

The affective domain includes emotions, values, and attitudes. While these may be harder to observe and quantify compared to cognitive skills, they are vital to developing effective physicians. Like the cognitive domain, they can also be categorized in order of complexity.


The Psychomotor Domain

The psychomotor domain entails physical functions that make up the performance of tasks, skills, or actions (3). For example, the physical skills needed to start an intravenous line or perform sutures fall into the psychomotor domain. Objectives in the psychomotor domain can often be measured by observation and quality of outcomes as well as metrics such as speed, accuracy, and patient satisfaction.



Takeaway Message:

Base Your Teaching and Your Learning
On Evidence-Based Principles!



Important Post-Event Information



- **Follow-Up:** We will share the Learning Objectives handout along with our follow-up survey, which we encourage you to complete.
- **Certificates:** An attendance certificate for the seminar can be requested on the survey form.
- **Summary Document:** A summary document of key strategies, including implementation tips and key points will be sent to all participants next week.

Are You Interested in Our Future Events?



Save the date for our upcoming
Durable Learning Seminar

Assessments: New uses for an old tool

November 2, 2022, 9:00 PDT | 12:00 EDT | 18:00 CEST

Are you interested in contributing to learning science?
**Join our Learning Science team's research
endeavors!**

Contact us: learning-science@lecturio.com

Lecturio's Implementation of Learning Objectives

Join our **regional demonstration sessions** to learn how you can use Lecturio to foster **learning objectives** alignment in your teaching.

To participate, please choose a breakout room for one of the following **regional sessions**:

- USA, Canada, and Caribbean
- Europe and Middle East
- Latin America
- Asia, Africa, NZ, Australia (Main Room)

If you are having trouble joining your preferred room, please let us know in the chat and we will transfer you to the correct session.





Contact us

Learning Science Team
learning-science@lecturio.com